In the Claims

1-135 (canceled).

136 (new). A method to measure or detect an interaction between components of sample formulations, comprising:

a) preparing an array of samples, wherein:
   1) each sample comprises a component-in-common and one or more additional components, each sample varying in the identity of the one or more additional components or varying in the ratio of the volume of component-in-common to the volume of the one or more additional components,
   2) the samples are located at separate sites or in separate wells of the array,
   3) the array is comprised of at least 1000 different samples, and
   4) the array is prepared by an automated robotics system that adds and mixes the components of each sample under software control,
b) testing each sample for a property to generate a data set, and
c) analyzing the data set to measure or detect an interaction between components of the sample formulations.

137 (new). The method of claim 136 wherein the interaction between components of the sample formulations decreases solubility.

138 (new). The method of claim 136 wherein the interaction between components of the sample formulations has a synergistic effect on solubility.

139 (new). The method of claim 136 wherein the component-in-common is an active component.

140 (new). The method of claim 139 wherein the component-in-common is a pharmaceutical.

141 (new). The method of claim 140 wherein the pharmaceutical component-in-common is selected from the group consisting of:

a) a therapeutic,

b) a prophylactic, and

c) a diagnostic agent.

142 (new). The method of claim 136 wherein the component-in-common is an inactive component.

143 (new). The method of claim 136 wherein the component-in-common is a solid.

144(new). The method of claim 136 wherein the component-in-common is a liquid.

145 (new). The method of claim 136 wherein the each sample of the array comprises less than 100 μg of the component-in-common.

146 (new). The method of claim 136 wherein the each sample of the array comprises less than 100 ng of the component-in-common.

147 (new). The method of claim 136 wherein each sample of the array has a total volume between 150 and 200 μl.

148 (new). The method of claim 136 wherein the array is formed by input of the components in solid form.

149 (new). The method of claim 136 wherein the array is formed by input of the components in liquid form.

150 (new). The method of claim 136 wherein the sample testing is performed at a rate greater than or equal to 1000 formulations per day.

151 (new). The method of claim 136 wherein the data set is analyzed to arrive at optimized formulations and interactions.

152 (new). The method of claim 136 wherein the data set is processed through data mining algorithms so as to optimize the ability of scientific personnel to detect complex multi-dimensional interactions between components.

153 (new). The method of claim 136 wherein the data set is processed through data mining algorithms so as to optimize the ability of scientific personnel to detect a lack of interactions between components.

154 (new). The method of claim 136 wherein the data set is processed through data mining algorithms so as to optimize the ability of scientific personnel to conduct future experiments to optimize formulations.

155 (new). A method to measure or detect a synergistic interaction between pharmaceutical components of sample formulations, comprising:

a) preparing an array of samples, wherein:
   1) each sample comprises a pharmaceutical component-in-common, one or more additional pharmaceutical components, and one or more additional excipient components, each sample varying in the identity of the additional one or more pharmaceutical and excipient components or varying in the ratio of the volume of pharmaceutical component-in-common to the volume of the additional one or more pharmaceutical and excipient components,
   2) the samples are located at separate sites or in separate wells of the array,
   3) the array is comprised of at least 1000 different samples, and

4) the array is prepared by an automated robotics system that adds and mixes the components of each sample under the control of software,

b) testing each sample for a property to generate a data set, and

c) analyzing the data set to measure or detect a synergistic interaction between components of the sample formulations.

156 (new). The method of claim 155 wherein the interaction between components of the sample formulations decreases solubility.

157 (new). The method of claim 155 wherein the interaction between components of the sample formulations has a synergistic effect on solubility.

158 (new). The method of claim 155 wherein the pharmaceutical component-in-common is selected from the group consisting of:

a) a therapeutic,

b) a prophylactic, and

c) a diagnostic agent.

159 (new). The method of claim 155 wherein the component-in-common is a solid.

160 (new). The method of claim 155 wherein the component-in-common is a liquid.

161 (new). The method of claim 155 wherein the each sample of the array comprises less than 100 μg of the component-in-common.

162 (new). The method of claim 155 wherein the each sample of the array comprises less than 100 ng of the component-in-common.

163 (new). The method of claim 155 wherein each sample of the array has a total volume between 150 and 200 µl.

164 (new). The method of claim 155 wherein the array is formed by input of the components in solid form.

165 (new). The method of claim 155 wherein the array is formed by input of the components in liquid form.

166 (new). The method of claim 155 wherein the sample testing is performed at a rate greater than or equal to 1000 formulations per day.

167 (new). The method of claim 155 wherein the data set is analyzed to arrive at optimized formulations and interactions.

168 (new). The method of claim 155 wherein the data set is processed through data mining algorithms so as to optimize the ability of scientific personnel to detect complex multi-dimensional interactions between components.

169 (new). The method of claim 155 wherein the data set is processed through data mining algorithms so as to optimize the ability of scientific personnel to detect a lack of interactions between components.

170 (new). The method of claim 155 wherein the data set is processed through data mining algorithms so as to optimize the ability of scientific personnel to conduct future experiments to optimize formulations.

171 (New). The method according to claim 155, wherein said at least three excipients are selected from the group consisting of: acidulents; solubilizing components; absorbents; alkalizing

components; anticaking components; antimicrobial components; antioxidants; binders; buffering components; chelating components; coating components; controlled release vehicles; detergents; emollients; emulsifying components; flavoring components; humectants; lubricants; solvents; stabilizing components; tonicity components; binders; fillers; and mixtures thereof.

172 (New). The method according to claim 136, wherein said at least three excipients are selected from the group consisting of: acidulents; solubilizing components; absorbents; alkalizing components; anticaking components; antimicrobial components; antioxidants; binders; buffering components; chelating components; coating components; controlled release vehicles; detergents; emollients; emulsifying components; flavoring components; humectants; lubricants; solvents; stabilizing components; tonicity components; binders; fillers; and mixtures thereof.